

WHAT IS CLAIMED IS:

1. An audio-visual data recording/reproducing device for recording/reproducing stream data that are transferred synchronously with a display timing, comprising:

5 a stream data input/output interface for inputting/outputting the stream data from/to an external device;

a timestamp adding and recording portion for generating timestamped data to which a timestamp corresponding to the display timing has been added based on the stream data that are input via the stream data input/output interface and for recording the
10 timestamped data in a recording medium;

a stream data reproducing portion for reproducing stream data based on timestamped data that are read from the recording medium, in order to output the stream data via the stream data input/output interface;

an asynchronous input/output interface for inputting/outputting from/to the external
15 device, timestamped data having a timestamp added thereto that are transferred asynchronously with the display timing;

an asynchronous transfer data recording portion for recording the timestamped data that are input via the asynchronous input/output interface in the recording medium; and

an asynchronous transfer data reproducing portion for reading timestamped data
20 from the recording medium, in order to output the timestamped data via the asynchronous input/output interface.

2. The audio-visual data recording/reproducing device according to claim 1, further comprising said recording medium in which the timestamped data are recorded.

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3. The audio-visual data recording/reproducing device according to claim 1, wherein synchronous transfer is performed with higher preference than

asynchronous transfer.

4. The audio-visual data recording/reproducing device according to claim 3,
wherein, when there is a request for the synchronous transfer during the
5 asynchronous transfer, the asynchronous transfer is interrupted and the synchronous transfer
is performed, and the asynchronous transfer is resumed when the synchronous transfer is
completed.

5. The audio-visual data recording/reproducing device according to claim 4,
10 wherein, when the asynchronous transfer is interrupted, information showing a
state during the interruption is held, and then the asynchronous transfer is resumed based on
the held information.

6. The audio-visual data recording/reproducing device according to claim 3,
15 wherein, when there is a request for the asynchronous transfer during the
synchronous transfer, the request for the asynchronous transfer is rejected.

7. The audio-visual data recording/reproducing device according to claim 3,
wherein, when there is a request for the asynchronous transfer during the
20 synchronous transfer, the asynchronous transfer is left pending until the synchronous
transfer is completed.

8. The audio-visual data recording/reproducing device according to claim 7,
wherein, when there is a request for the asynchronous transfer during the
25 synchronous transfer, transfer of the timestamped data is left pending in a state in which the
timestamped data has been read from the recording medium by the asynchronous transfer
data reproducing portion.

9. The audio-visual data recording/reproducing device according to claim 1,
wherein the synchronous transfer and the asynchronous transfer can be performed
in parallel.

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10. The audio-visual data recording/reproducing device according to claim 1,
wherein at least one of the transfer bands of the synchronous transfer and the
asynchronous transfer can be set in a variable manner.

10 11. The audio-visual data recording/reproducing device according to claim 10, further
comprising a buffer memory for holding the timestamped data associated with the
synchronous transfer and the timestamped data associated with the asynchronous transfer,
wherein a ratio between a size of a region where the timestamped data associated
with the synchronous transfer and a size of a region where the timestamped data associated
15 with the asynchronous transfer in the buffer memory is set in accordance with the setting of
the transfer bands.

12. The audio-visual data recording/reproducing device according to claim 1, further
comprising:

20 an encryption portion for encrypting the timestamped data that are input via the
asynchronous input/output interface and that are recorded in the recording medium by the
asynchronous transfer data recording portion; and

a decryption portion for decrypting the timestamped data that are read from the
recording medium by the asynchronous transfer data reproducing portion and that are
25 transferred to the external device via the asynchronous input/output interface.

13. The audio-visual data recording/reproducing device according to claim 12,

wherein the encryption portion and the decryption portion perform encryption or decryption, using key information that is unique to the audio-visual data recording/reproducing device.

5 14. The audio-visual data recording/reproducing device according to claim 12, further comprising:

copyright information-detecting means for detecting information relating to copyright of the timestamped data that are transferred via the asynchronous input/output interface; and

10 copyright protection-control means for causing the encryption portion to encrypt the timestamped data when copyright protection is required, and causing the decryption portion to decrypt the encrypted timestamped data when copyright protection is required and the external device has a copyright protection function.

15 15. An audio-visual data recording device for recording stream data that are transferred synchronously with a display timing, comprising:

a stream data input interface for inputting the stream data from an external device; and

20 a timestamp adding and recording portion for generating timestamped data to which a timestamp corresponding to the display timing has been added thereto based on the stream data that are input via the stream data input interface and for recording the timestamped data in a recording medium;

25 an asynchronous input interface for inputting timestamped data already having a timestamp added thereto that are transferred asynchronously with the display timing from the external device; and

an asynchronous transfer data recording portion for recording the timestamped data that are input via the asynchronous input interface in the recording medium.

16. An audio-visual data reproducing device for reproducing timestamped data to which a timestamp corresponding to a display timing has been added thereto that are recorded on a recording medium and for transferring the timestamped data as stream data
5 that are synchronous with the display timing to an external device, comprising:

a stream data reproducing portion for reading the timestamped data recorded in the recording medium, for eliminating the timestamp from the timestamped data and for outputting the stream data with a timing based on the timestamped data; and

a stream data output interface for outputting, to the external device, the stream data
10 that are output from the stream data reproducing portion;

an asynchronous output interface for outputting, to the external device, the timestamped data having the timestamp added thereto that are transferred asynchronously with the display timing; and

an asynchronous transfer data reproducing portion for reading the timestamped data
15 from the recording medium, in order to output the timestamped data via the asynchronous output interface.